

AMENDMENT TO THE CLAIMS

Please amend claim 5 as shown below.

Please add new claims 18-23.

1. (Original) A nanofiltration system comprising:
a filtration chamber having an input connection and an output connection;
an input feed line containing a mixture of water, acids and sugars, the input feed line coupled to the filtration chamber input connection;
an output line coupled to the filtration chamber output connection; and
a nanofiltration membrane positioned within the filtration chamber, the membrane having a first side in fluid communication with the input feed line to receive the mixture therefrom and a second side opposite the first side, the second side being in fluid communication with the output line, the membrane allowing passage of the acids in the mixture while substantially blocking passage of the sugars in the mixture.

2. (Original) The system of claim 1, further comprising a chromatographic unit having an first input to receive water and a second input to receive a mixture of water, acid and sugar, the chromatographic unit performing a partial separation of acids and sugars and having a first output to supply the separated sugar and a second output coupled to the input feed line to supply the mixture of water, acids and sugars to the filtration chamber.

3. (Original) The system of claim 2, further comprising a feedback line from the nanofiltration unit to the chromatographic unit, the feedback line returning concentrate sugar to the chromatographic unit for further separation.

4. (Original) The system of claim 2, further comprising:
a pre-filtration chamber having an input connection and an output connection;

an input feed line containing a mixture of water, acids and sugars, the input feed line coupled to the pre-filtration chamber input connection;

an output line coupled to the second input of the chromatographic unit;
and

a pre-filter nanofiltration membrane positioned within the pre-filtration chamber, the membrane having a first side in fluid communication with the input feed line to receive the mixture therefrom and a second side opposite the first side, the membrane allowing passage of the acids in the mixture from the membrane first side to the membrane second side while substantially blocking passage of the sugars in the mixture.

5. (Currently Amended) The system of claim ~~4~~ 2, further comprising a sugar processing system coupled to the first output of the chromatographic unit to receive the separated sugar therefrom, the sugar processing system processing the sugar into a final product.

6. (Original) The system of claim 5 wherein the sugar processing system is a fermentation/distillation system and processes the sugar into ethanol.

7. (Original) The system of claim 5 wherein the sugar processing processes the sugar into a sweetener.

8. (Original) The system of claim 1, further comprising an acid processing system coupled to the output line coupled to the filtration chamber.

9. (Original) The system of claim 8 wherein the acid processing system reconcentrates the acid for subsequent reuse.

10-17. (Canceled)

18. (New) A nanofiltration apparatus for processing acid used in biomass hydrolysis conversion and contaminated with sugar, the apparatus comprising:
a chromatographic unit having an first input to receive water and a second input to receive a mixture of water, acid used in the biomass hydrolysis process and sugar, the chromatographic unit performing a partial separation of acids and sugars and having a first output to supply the separated sugar and a second output to supply a mixture of water, partially purified acid, and sugar contaminant;
a filtration chamber having an input connection and an output connection;
an input feed line coupled to the second output of the chromatographic unit to receive the mixture of water, partially purified acid, and sugar contaminant, the input feed line coupled to the filtration chamber input connection;
an output line coupled to the filtration chamber output connection; and
a nanofiltration membrane positioned within the filtration chamber, the membrane having a first side in fluid communication with the input feed line to receive the mixture of water, partially purified acid, and sugar contaminant therefrom and a second side opposite the first side, the second side being in fluid communication with the output line, the membrane allowing passage of the acids in the mixture from the membrane first side to the membrane second side while substantially blocking passage of the sugars in the mixture.

19. (New) The apparatus of claim 18 wherein the acid is sulfuric acid.

20. (New) The apparatus of claim 18, further comprising a feedback line in fluid communication with the membrane first side and coupled to the chromatographic unit second input.

21. (New) The apparatus of claim 18, further comprising a sugar processing system coupled to the first output of the chromatographic unit to receive the

separated sugar therefrom, the sugar processing system processing the sugar into a final product.

22. (New) The apparatus of claim 21 wherein the sugar processing system is a fermentation/distillation system and processes the sugar into ethanol.

23. (New) The apparatus of claim 18, further comprising an acid processing system coupled to the output line of the filtration chamber, the acid processing system comprising a thermal evaporative concentration system.